

AMENDMENTS TO CLAIMS

1. (Canceled)
2. (Amended) The ultrasound bandage of Claim + 4 wherein the backing layer is a polyurethane film.
3. (Amended) The ultrasound bandage of Claim + 4 wherein the adhesive layer is fabricated from a material selected from the group consisting of polyacrylic resin, polyvinylether resin and polyurethane resin.
4. (Amended) The ultrasound bandage of Claim + An ultrasound bandage which comprises:
 - a) a backing layer possessing upper and lower surfaces;
 - b) an adhesive layer applied to, and substantially coextensive with, the lower surface of the backing layer; and,
 - c) a transducer material disposed on at least a portion of the adhesive layer, comprising wherein the transducer material comprises a fiber sheet formed from a composition containing a piezoelectric material.
5. (Originally presented) The ultrasound bandage of Claim 4 wherein the fiber sheet is a fabric woven from one or more fibers containing a piezoelectric material.
6. (Originally presented) The ultrasound bandage of Claim 4 wherein the piezoelectric material is selected from the group consisting of PZT powders, ceramic, PVDF, lead zirconate titanate Pb(Zr,Ti)O₃, lead metaniobate Pb(Nb₂O₆) modified lead titanate PbTi₃,(Pb,Ca)TiO₃, (Pb,Sm)TiO₃, barium titanate BaTiO₃, PMN-PT(1-x)Pb(Mg_{1/3},Nb_{2/3})O₃-

x PbTiO₃, PZN-PT/BT Pb(Zn_{1/3},Nb_{2/3})O₃- x PbTiO₃-BaTiO₃, (1- x)Pb(Zn_{1/3},Nb_{2/3})O₃- x (yPbTiO₃-(1-y)PbZrO₃) and mixtures thereof.

7. (Originally presented) The ultrasound bandage of Claim 4 wherein the fiber sheet is knitted, braided or woven from extruded fibers containing a piezoelectric material.

8. (Originally presented) The ultrasound bandage of Claim 4 wherein the extruded fibers possess a coating formed thereon.

9. (Originally presented) The ultrasound bandage of Claim 8 wherein the coating comprises a film-forming polymer solution.

10. (Originally presented) The ultrasound bandage of Claim 9 wherein the film-forming polymer solution contains a mixture of a polyvinyl alcohol and polyvinyl acetate as a major component thereof and polyethylene glycol as a minor component thereof.

11. (Amended) The ultrasound bandage of Claim 4 further comprising an electrode surface applied to, and substantially coextensive with, opposite surfaces of the transducer material and a matching layer applied to, and substantially coextensive with, one of the electrode surfaces.

12. (Originally presented) The ultrasound bandage of Claim 11 wherein the matching layer comprises a polymeric material and optionally a filler.

13. (Originally presented) The ultrasound bandage of Claim 12 wherein the polymeric material is selected from the group consisting of thermoplastics, thermosets, rubbers, epoxy and mixtures thereof.

14. (Originally presented) The ultrasound bandage of Claim 12 wherein the matching layer includes a filler selected from the group consisting of PZT, tungsten, alumina, silica glass, tungsten carbide and titanium.

15. (Originally presented) The ultrasound bandage of Claim 12 wherein the matching layer includes glass powder as a filler.

16. (Originally presented) The ultrasound bandage of Claim 11 wherein the matching layer has an acoustic impedance of from about 2.0 to about 7.0 MRaysl.

17. (Originally presented) The ultrasound bandage of Claim 11 further comprising a coupling pad applied to, and substantially coextensive with, the matching layer.

18. (Originally presented) The ultrasound bandage of Claim 17 wherein the coupling pad is a hydrogel pad.

19. (Originally presented) The ultrasound bandage of Claim 17 wherein the coupling pad is configured as a wedge to direct a longitudinal wave from the transducer material off-axis for to an internal designated reflection site and/or for modal conversion.

20. (Amended) The ultrasound bandage of Claim 4 4 further comprising connector assemblies having connectors and leads, the connectors detachably connect leads to the transducer material and the leads are coupled to a portable main operating unit.

21. (Originally presented) The ultrasound bandage of Claim 19 further comprising a cover covering the adhesive layer and the coupling pad and being applied to the adhesive layer.

22. (Canceled)

23. (Amended) The method of Claim 22 25 wherein the backing layer is a polyurethane film.

24. (Amended) The method of Claim 22 25 wherein the adhesive layer is fabricated from a material selected from the group consisting of polyacrylic resin, polyvinylether resin and polyurethane resin.

25. (Amended) ~~The method of Claim 22 wherein the transducer material comprises~~

A method for manufacturing an ultrasound bandage which comprises:

- a) providing a backing layer possessing upper and lower surfaces;
- b) applying an adhesive layer to, and substantially coextensive with, the lower surface of the backing layer; and,
- c) disposing a transducer material on at least a portion of the adhesive layer, comprising a fiber sheet formed from a composition containing a piezoelectric material.

26. (Originally presented) The method of Claim 25 wherein the fiber sheet is a fabric woven from one or more fibers containing a piezoelectric material.

27. (Originally presented) The method of Claim 25 wherein the piezoelectric material is selected from the group consisting of PZT powders, ceramic, PVDF, lead zirconate titanate Pb(Zr,Ti)O₃, lead metaniobate Pb(Nb₂O₆) modified lead titanate PbTi₃, (Pb,Ca)TiO₃, (Pb,Sm)TiO₃, barium titanate BaTiO₃, PMN-PT(1-x)Pb(Mg_{1/3},Nb_{2/3})O₃-xPbTiO₃, PZN-PT/BT Pb(Zn_{1/3},Nb_{2/3})O₃-xPbTiO₃-BaTiO₃, (1-x)Pb(Zn_{1/3},Nb_{2/3})O₃-x(yPbTiO₃-(1-y)PbZrO₃) and mixtures thereof.

28. (Originally presented) The method of Claim 25 wherein the extruded fibers possess a coating formed thereon.

29. (Originally presented) The method of Claim 28 wherein the coating comprises a film-forming polymer solution.

30. (Originally presented) The method of Claim 29 wherein the film-forming polymer solution contains a mixture of a polyvinyl alcohol and polyvinyl acetate as a major component thereof and polyethylene glycol as a minor component thereof.

31. (Amended) The method of Claim 22 25 further comprising an electrode surface applied to, and substantially coextensive with, opposite surfaces of the transducer material and a matching layer applied to, and substantially coextensive with, one of the electrode surfaces.

32. (Originally presented) The method of Claim 31 wherein the matching layer comprises a polymeric material and optionally a filler.

33. (Originally presented) The method of Claim 32 wherein the polymeric material is selected from the group consisting of thermoplastics, thermosets, rubbers, epoxy and mixtures thereof.

34. (Originally presented) The method of Claim 32 wherein the matching layer includes, a filler selected from the group consisting of PZT, tungsten, alumina, silica glass, tungsten carbide and titanium.

35. (Originally presented) The method of Claim 32 wherein the matching layer includes glass powder as a filler.

36. (Originally presented) The method of Claim 31 wherein the matching layer has an acoustic impedance of from about 2.0 to about 7.0 MRayls.

37. (Originally presented) The method of Claim 31 further comprising applying a coupling pad to, and substantially coextensive with, the matching layer.

38. (Originally presented) The method of Claim 37 wherein the coupling pad is a hydrogel pad.

39. (Originally presented) The method of Claim 37 wherein the coupling pad is configured as a wedge to direct a longitudinal wave from the transducer material off-axis for to an internal designated reflection site and/or for modal conversion.

40. (Amended) The method of Claim 22 25 further comprising connecting connector assemblies having connectors and leads to the transducer material of the ultrasonic bandage.

41. (Canceled)

42. (Amended) The ultrasound transducer array bandage of Claim 41 44 wherein the backing layer is a polyurethane film.

43. (Amended) The ultrasound transducer array bandage of Claim 41 44 wherein the adhesive layer is fabricated from a material selected from the group consisting of polyacrylic resin, polyvinylether resin and polyurethane resin.

44. (Amended) The ultrasound transducer array bandage of Claim 41 An ultrasound transducer array bandage which comprises:

- a) a backing layer possessing upper and lower surfaces;
- b) an adhesive layer applied to, and substantially coextensive with, the lower surface of the backing layer;
- c) an array comprising a plurality of transducer materials arranged in adjacent relation to define spaces there between, the array being disposed on at least a portion of the adhesive layer; and,
- d) a connector assembly applied to the array;

wherein each transducer material comprises a fiber sheet formed from a composition containing a piezoelectric material.

45. (Originally presented) The ultrasound transducer array bandage of Claim 44 wherein the fiber sheet is a fabric woven from one or more extruded fibers containing a piezoelectric material.

46. (Originally presented) The ultrasound transducer array bandage of Claim 44 wherein the piezoelectric material is selected from the group consisting of PZT powders, ceramic, PVDF, lead zirconate titanate $Pb(Zr,Ti)O_3$, lead metaniobate $Pb(Nb_2O_6)$ modified lead titanate $PbTi_3$, $(Pb,Ca)TiO_3$, $(Pb,Sm)TiO_3$, barium titanate $BaTiO_3$, PMN-PT(1-x) $Pb(Mg_{1/3},Nb_{2/3})O_3$ -x $PbTiO_3$, PZN-PT/BT $Pb(Zn_{1/3},Nb_{2/3})O_3$ -x $PbTiO_3$ -BaTiO₃, (1-x) $Pb(Zn_{1/3},Nb_{2/3})O_3$ x(y $PbTiO_3$ -(1-y) $PbZrO_3$) and mixtures thereof.

47. (Originally presented) The ultrasound transducer array bandage of Claim 44 wherein the fiber sheet is knitted, braided or woven from extruded fibers containing a piezoelectric material.

48. (Originally presented) The ultrasound transducer array bandage of Claim 44 wherein the extruded fibers possess a coating formed thereon.

49. (Originally presented) The ultrasound transducer array bandage of Claim 48 wherein the coating comprises a film-forming polymer solution.

50. (Originally presented) The ultrasound transducer array bandage of Claim 49 wherein the film-forming polymer solution contains a mixture of a polyvinyl alcohol and polyvinyl acetate as a major component thereof and polyethylene glycol as a minor component thereof.

51. (Amended) The ultrasound transducer array bandage of Claim 41 44 further comprising an electrode surface applied to, and substantially coextensive with, opposite surfaces of each transducer material and a matching layer applied to, and substantially coextensive with, one of the electrode surfaces.

52. (Originally presented) The ultrasound transducer array bandage of Claim 51 wherein the matching layer comprises a polymeric material and optionally a filler.

53. (Originally presented) The ultrasound transducer array bandage of Claim 52 wherein the polymeric material is selected from the group consisting of thermoplastics, thermosets, rubbers, epoxy and mixtures thereof.

54. (Originally presented) The ultrasound transducer array bandage of Claim 52 wherein the matching layer includes a filler selected from the group consisting of PZT, tungsten, alumina, silica glass, tungsten carbide and titanium.

55. (Originally presented) The ultrasound transducer array bandage of Claim 52 wherein the matching layer includes glass powder as a filler.

56. (Originally presented) The ultrasound bandage of Claim 51 wherein the matching layer has an acoustic impedance of from about 2.0 to about 7.0 MRayls.

57. (Originally presented) The ultrasound transducer array bandage of Claim 51 further comprising a coupling pad applied to, and substantially coextensive with, the matching layer.

58. (Originally presented) The ultrasound transducer array bandage of Claim 57 wherein the coupling pad is a hydrogel pad.

59. (Originally presented) The ultrasound transducer array bandage of Claim 57 wherein the coupling pad is configured as a wedge to direct a longitudinal wave from each transducer material off-axis for to an internal designated reflection site and/or for modal conversion.

60. (Amended) The ultrasound transducer array bandage of Claim 41 44 wherein the connector assemblies comprise connectors and leads, the connectors detachably connect leads to the array and the leads are coupled to a portable main operating unit.

61. (Amended) The ultrasound transducer array bandage of Claim 41 44 further comprising a cover covering the adhesive layer and the coupling pad and being applied to the adhesive layer.

62. (Canceled)

63. (Amended) The method of Claim 62 65 wherein the backing layer is a polyurethane film.

64. (Amended) The method of Claim 62 65 wherein the adhesive layer is fabricated from a material selected from the group consisting of polyacrylic resin, polyvinylether resin and polyurethane resin.

65. (Amended) The method of Claim 62 A method for manufacturing an ultrasound transducer array bandage which comprises:

a) providing a backing layer possessing upper and lower surfaces;

b) applying an adhesive layer to, and substantially coextensive with, the lower surface of the backing layer;

c) disposing an array comprising a plurality of transducer materials arranged in adjacent relation to define spaces there between on at least a portion of the adhesive layer; and,

d) applying a connector assembly to the array;

wherein each transducer material comprises a fiber sheet formed from a composition containing a piezoelectric material.

66. (Originally presented) The method of Claim 65 wherein the piezoelectric material is selected from the group consisting of PZT powders, ceramic, PVDF, lead zirconate titanate Pb(Zr,Ti)O₃, lead metaniobate Pb(Nb₂O₆) modified lead titanate PbTi₃, (Pb,Ca)TiO₃, (Pb,Sm)TiO₃, barium titanate BaTiO₃, PMN-PT(1-x)Pb(Mg_{1/3},Nb_{2/3})O₃-xPbTiO₃, PZN-PT/BT

$\text{Pb}(\text{Zn}_{1/3},\text{Nb}_{2/3})\text{O}_3$ -x PbTiO_3 - BaTiO_3 , (1-x) $\text{Pb}(\text{Zn}_{1/3},\text{Nb}_{2/3})\text{O}_3$ -x(y PbTiO_3 -(1-y) PbZrO_3) and mixtures thereof.

67. (Originally presented) The method of Claim 65 wherein the fiber sheet is a fabric woven from one or more fibers containing a piezoelectric material.

68. (Originally presented) The method of Claim 65 further comprising the step of forming the fiber sheet by knitting, braiding or weaving the extruded fibers.

69. (Originally presented) The method of Claim 68 further comprising applying a coating to the extruded fibers prior to forming the fiber sheet.

70. (Originally presented) The method of Claim 69 wherein the coating comprises a film-forming polymer solution.

71. (Originally presented) The method of Claim 70 wherein the film-forming polymer solution contains a mixture of a polyvinyl alcohol and polyvinyl acetate as a major component thereof and polyethylene glycol as a minor component thereof.

72. (Amended) The method of Claim 62 65 further comprising an electrode surface applied to, and substantially coextensive with, opposite surfaces of each transducer material and a matching layer applied to, and substantially coextensive with, one of the electrode surfaces.

73. (Originally presented) The method of Claim 72 wherein the matching layer comprises a polymeric material and optionally a filler.

74. (Originally presented) The method of Claim 73 wherein the polymeric material is selected from the group consisting of thermoplastics, thermosets, rubbers, epoxy and mixtures thereof.

75. (Originally presented) The method of Claim 73 wherein the matching layer includes a filler selected from the group consisting of PZT, tungsten, alumina, silica glass, tungsten carbide and titanium.

76. (Originally presented) The method of Claim 73 wherein the matching layer includes glass powder as a filler.

77. (Originally presented) The ultrasound bandage of Claim 72 wherein the matching layer has an acoustic impedance of from about 2.0 to about 7.0 MRayls.

78. (Originally presented) The method of Claim 72 further comprising applying a coupling pad to, and substantially coextensive with, the matching layer

79. (Originally presented) The method of Claim 78 wherein the coupling pad is a hydrogel pad.

80. (Originally presented) The method of Claim 78 wherein the coupling pad is configured as a wedge to direct a longitudinal wave from each transducer material off-axis for to an internal designated reflection site and/or for modal conversion.

81. (Amended) The method of Claim 62 65 wherein the connector assemblies comprise connectors and leads.

82. (Amended) A method for accelerating the healing of wounds comprising:

- a) positioning at least one ultrasound bandage adjacent to a body at the site of a wound;
- b) the ultrasound bandage comprising:
 - i) a backing layer possessing upper and lower surfaces;
 - ii) an adhesive layer applied to, and substantially coextensive with, the lower surface of the backing layer; and,

iii) a transducer material disposed on at least a portion of the adhesive layer,
wherein the transducer material comprises a fiber sheet formed from a composition containing a piezoelectric material; and,

c) causing the transducer material to generate ultrasonic pulses.

83. (Amended) The method of Claim 82 wherein at least one ultrasound bandage is positioned adjacent to a body at a plurality of sites of wounds.

84. (Amended) The method of Claim 82 further comprising applying an electrode surface to, and substantially coextensive with, opposite surfaces of the transducer material, applying a matching layer to, and substantially coextensive with, one of the electrode surfaces and applying a coupling pad configured as a wedge to the matching layer.

85. (Amended) A method for accelerating the healing of wounds comprising:

a) positioning at least one ultrasound transducer array bandage adjacent to a body at the site of a wound;

b) the ultrasound transducer array bandage comprising:

i) a backing layer possessing upper and lower surfaces;

ii) an adhesive layer applied to, and substantially coextensive with, the lower surface of the backing layer; and,

iii) an array comprising a plurality of transducer materials arranged in adjacent relation to define spaces there between, the array being disposed on at least a portion of the adhesive layer, wherein the transducer material comprises a fiber sheet formed from a composition containing a piezoelectric material, and,

c) causing the plurality of transducer materials to generate ultrasonic pulses.

86. (Originally presented) The method of Claim 85 wherein at least one ultrasound transducer array bandage is positioned adjacent to a body at a plurality of sites of wounds.

87. (Originally presented) The method of Claim 85 further comprising applying an electrode surface to, and substantially coextensive with, opposite surfaces of each transducer material, applying a matching layer to, and substantially coextensive with, one of the electrode surfaces and applying a coupling pad configured as a wedge to the matching layer.